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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/766,132 | 01/27/2004 | William A. Sirignano | 703538.4032 | 1974 |
| 34313 | 7590 | 09/21/2004 | EXAMINER | |
| ORRICK, HERRINGTON & SUTCLIFFE, LLP | | | CLARKE, SARA SACHIE | |
| 4 PARK PLAZA | | | | |
| SUITE 1600 | | | ART UNIT | |
| IRVINE, CA 92614-2558 | | | PAPER NUMBER | |
| | | | 3749 | |

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,132

Applicant(s)

SIRIGNANO ET AL.

Examiner

Sara Clarke

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15-17 and 19-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Priority

Applicant has not complied with the conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 because the parent application (10/140,316) was abandoned at the time of filing of the current application. Copendency between the current application and the prior application is required. If the petition to revive the parent application is granted, the requirements of 35 U.S.C. 120 would be satisfied.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 7, 10-12, 15, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schirmer (US 2918118).

Schirmer discloses the invention substantially as claimed with the exception of the lateral dimension of the chamber being sub-centimeter, and more particularly in the range of 1.0 to 3.0 millimeters, and the length being in the range of 1.0 to 10.0 centimeters.

The porous tube 15 of Schirmer diffuses liquid fuel into the chamber 18. As noted in the first paragraph of column 3, "The use of liquid fuel in this combustion apparatus provides for self-regulation of the wall temperature of the flame tube in accordance with the latent heat absorbed in the vaporization process occurring on the

inner surface of the primary combustion chamber." See also the bottom of column 1.

Thus, the apparatus operates in the same manner as applicant's apparatus. See pages 6 and 7 of applicant's specification.

It has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art. See MPEP 2144.04(A).

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to have scaled the apparatus of Schirmer to applicant's dimensions since it has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art and the apparatus of Schirmer operates in the same manner as applicant's apparatus.

Regarding claim 7, the pores of tube 15 comprise a plurality of orifices.

Claims 1-5, 7, 10, 11, 15, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meurer (US 3078672).

Meurer discloses the invention substantially as claimed with the exception of the lateral dimension of the chamber being sub-centimeter, and more particularly in the range of 1.0 to 3.0 millimeters, and the length being in the range of 1.0 to 10.0 centimeters.

The nozzle 3 of Meurer emits liquid fuel into the chamber 1. As noted in the last paragraph of column 2:

"Fuel injection nozzle 3 represents but one of several nozzles which may be used. The fuel emerges through the slit opening 3a and is immediately deposited upon the inner wall of chamber 1 as a solid fuel jet 4 and, without traversing any free path, is immediately spread as a film of fuel 4a on the inner wall of chamber 1."

Thus, the apparatus operates in the same manner as applicant's apparatus. See pages 6 and 7 of applicant's specification.

Regarding claim 3, see column 2, line 8 of Meurer.

It has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art. See MPEP 2144.04(A).

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to have scaled the apparatus of Meurer to applicant's dimensions since it has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art and the apparatus of Meurer operates in the same manner as applicant's apparatus.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meurer (US 3078672) as applied to claim 7 above, and further in view of Schirmer et al. (US 3955361).

Meurer discloses the invention substantially as claimed except for the injectors oriented tangentially and orthogonally to the major flow within the chamber.

Schirmer et al. discloses a fuel/air mixer/combustion chamber and teaches the use of injectors 49 oriented tangentially and orthogonally to the major flow within the chamber to form an annular stratum around the swirling stream of air to effect controlled mixing of the fuel and air. See Fig. 7.

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to provide the apparatus of Meurer with the injectors oriented tangentially and orthogonally to the major flow within the chamber as taught by

Schirmer et al. to form an annular stratum around the swirling stream of air to effect controlled mixing of the fuel and air.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao (US 4604988).

Rao discloses the invention as claimed including forming a liquid film of inert liquid (water) inside line 23 and injecting gaseous fuel (see col. 6, line 47).

It has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art. See MPEP 2144.04(A).

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to have scaled the apparatus of Rao to applicant's dimensions since it has been held that limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art and the apparatus of Rao operates in the same manner as applicant's apparatus.

Response to Arguments

Applicant argues that the systems disclosed by the applied prior art "would not function at the sub-centimeter dimensions of the present invention. The dimensional aspects of miniature combustion chambers create different phenomena which prevent the principles of larger combustion chamber systems from operating in smaller, miniaturized combustion chambers." Applicant further argues, "there is a long felt, but unsatisfied need to produce highly efficient miniature combustion chambers."

Applicant provides no evidence in support of these conclusory statements made by counsel. See MPEP 716.01(c). While the examiner has considered Applicant's

arguments, coupled with the record as a whole, they are not considered to be sufficient to overcome the obviousness rejections.

Taking the conclusory statements for the weight that they should be given and in view of the fact that Applicant has not set forth any supporting evidence, the rejection is considered proper and is maintained.

Conclusion

Since the status of the parent application (10/140,316) is currently "abandoned," any potential double patenting rejections have not been applied against the claims of the current application. However, it is noted that at least claim 1 of the current application is broader than claim 13 of the parent application as per the most recent amendment in the parent application. In case the petition to revive the parent is granted, Applicant is advised to consider filing a terminal disclaimer(s) to render any such issues moot.

Contact Information


Any inquiry concerning this or earlier communications from the examiner should be directed to Sara Clarke whose phone number is 703-308-1388. The examiner normally can be reached Mon-Fri, 8:30-1:00.

If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached at 703-308-1935. The fax number for the organization where this application is assigned is 703-872-9306.

Status information for an application is available from the Patent Application Information Retrieval (PAIR) system. Status information for published applications is available from Private or Public PAIR. Status information for unpublished applications is

available through Private PAIR only. For more information about PAIR, see <http://pair-direct.uspto.gov>. For questions on access to Private PAIR, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Sara Clarke 
Primary Examiner
Art Unit 3749

September 17, 2004